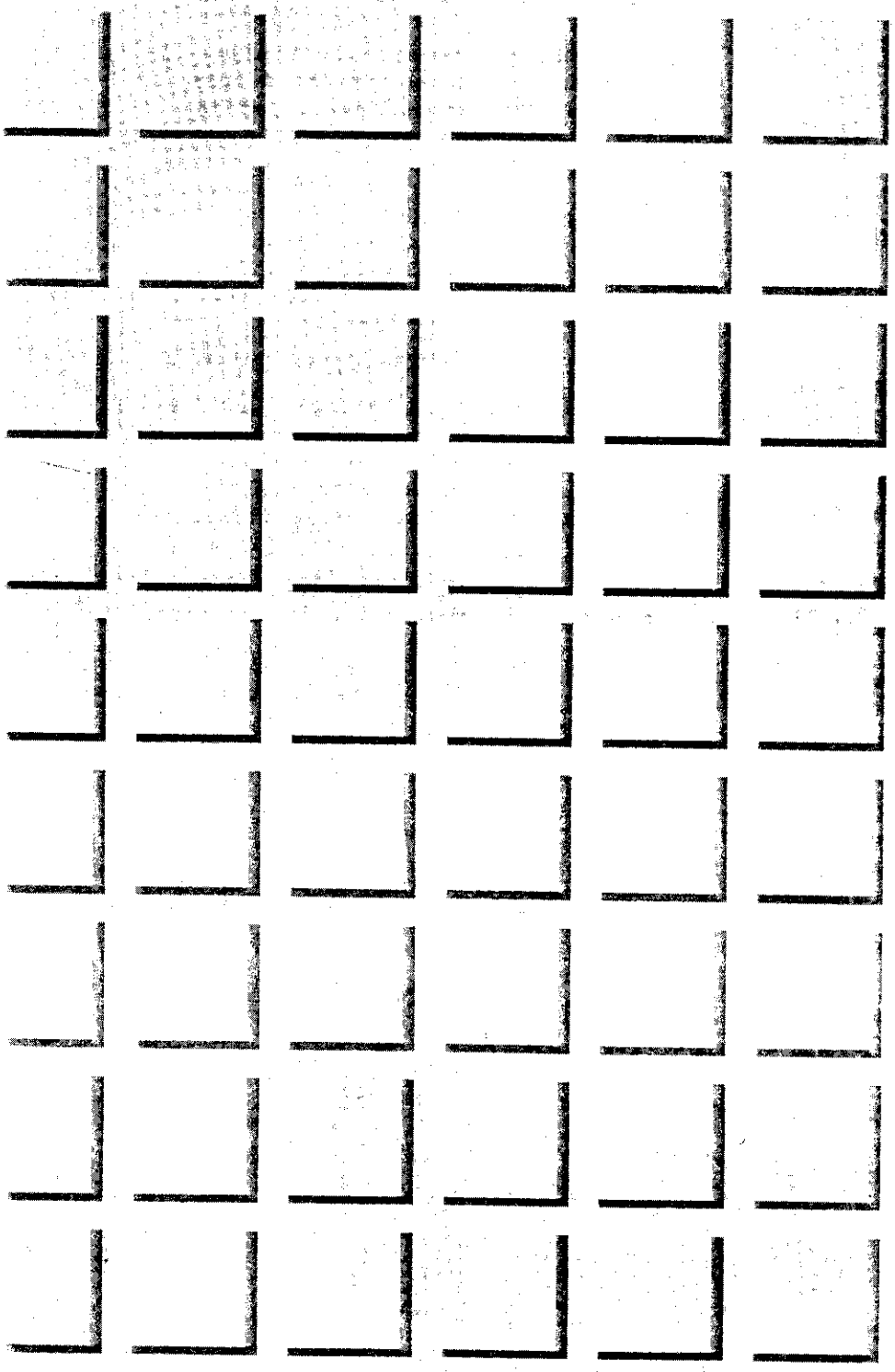


Operating Instructions

Video Cassette Recorder

NV-HD100EA

VHS PAL

SUPER DRIVE SYSTEM

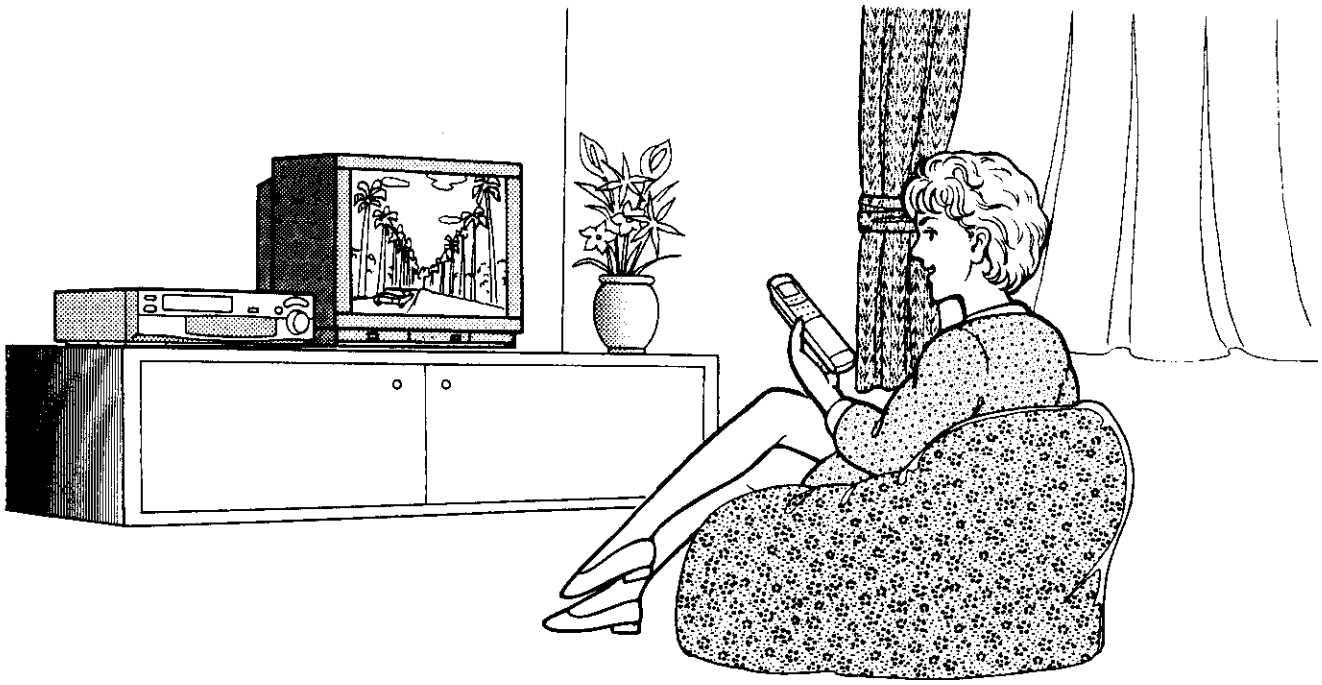
Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT5161

Dear Customer

May we take this opportunity to thank you for purchasing this Panasonic Video Cassette Recorder.

We would particularly advise that you carefully study the Operating Instructions before attempting to operate the unit and that you note the listed precautions.



Information for Your Safety

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

FOR YOUR SAFETY

■ **DO NOT REMOVE OUTER COVER.**
To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

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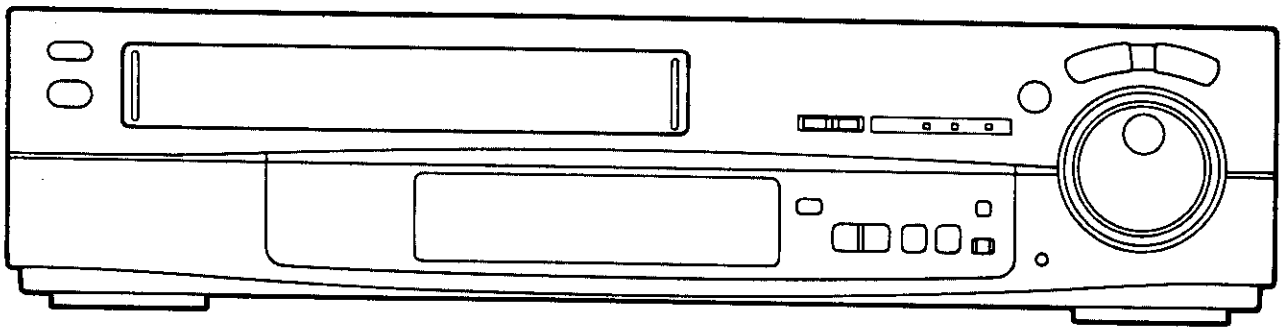
Unpacking

Check and identify the supplied accessories, and then set up this VTR after reading Setting Up.



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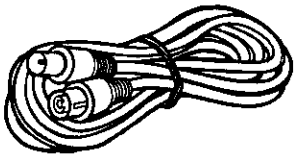

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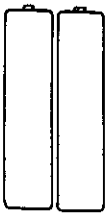

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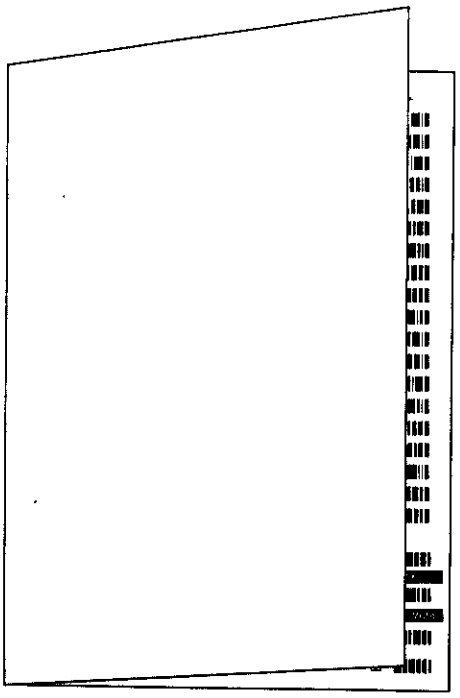

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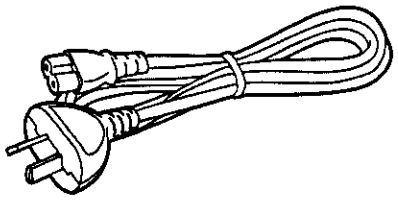

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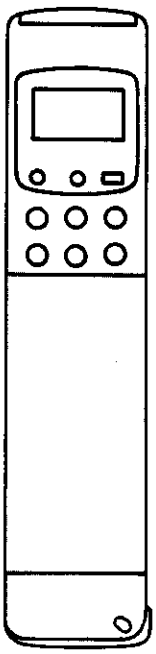

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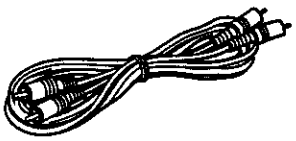
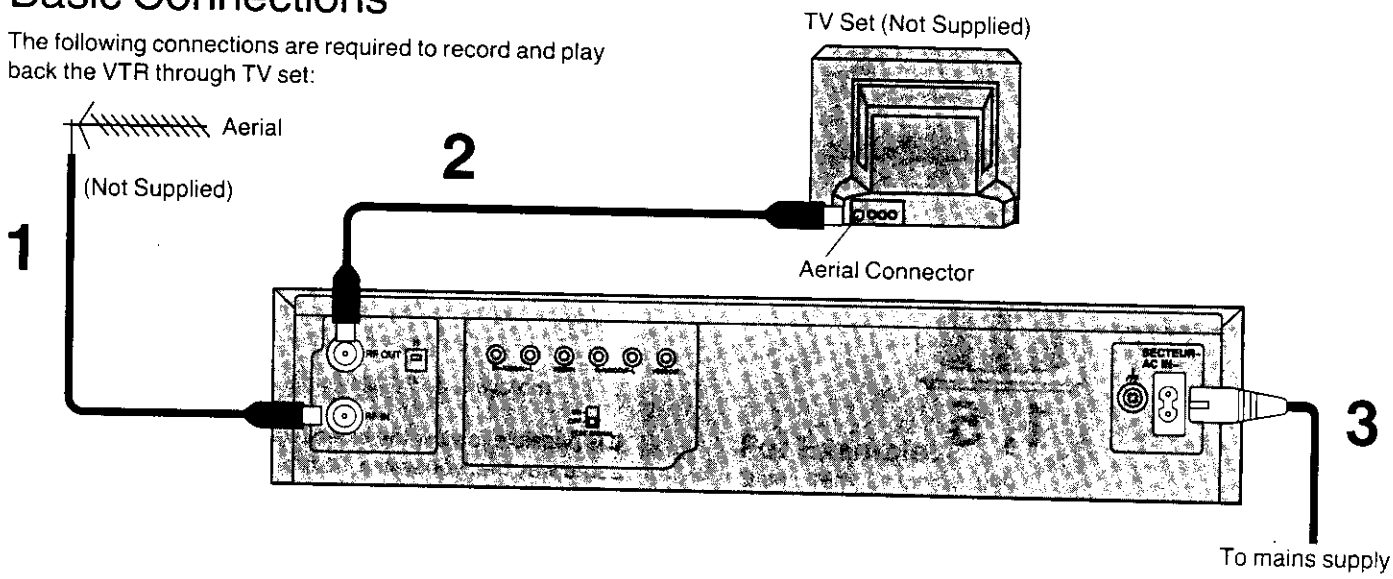


Connections

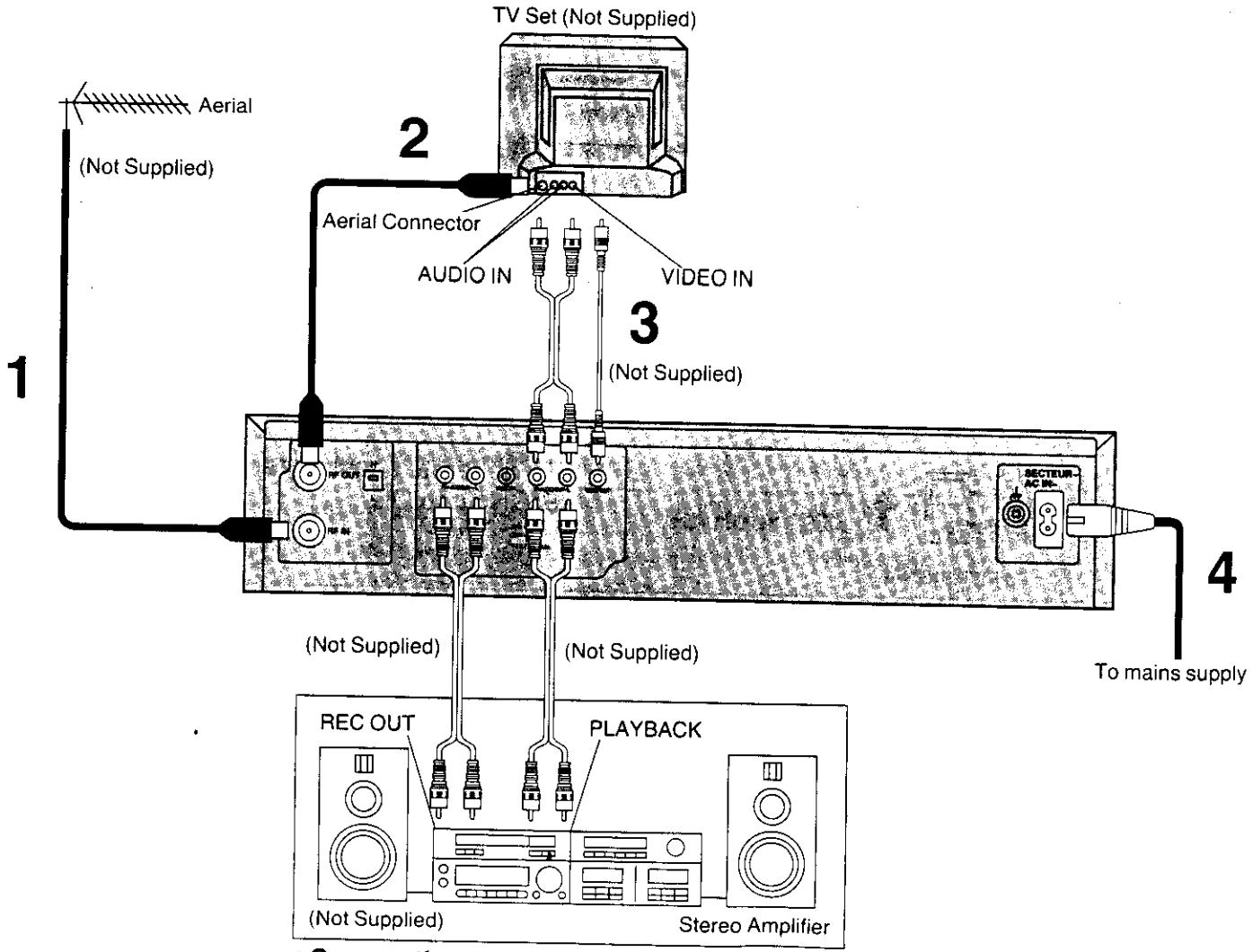
This tells you how to connect with an aerial, TV, etc.

Basic Connections

The following connections are required to record and play back the VTR through TV set:

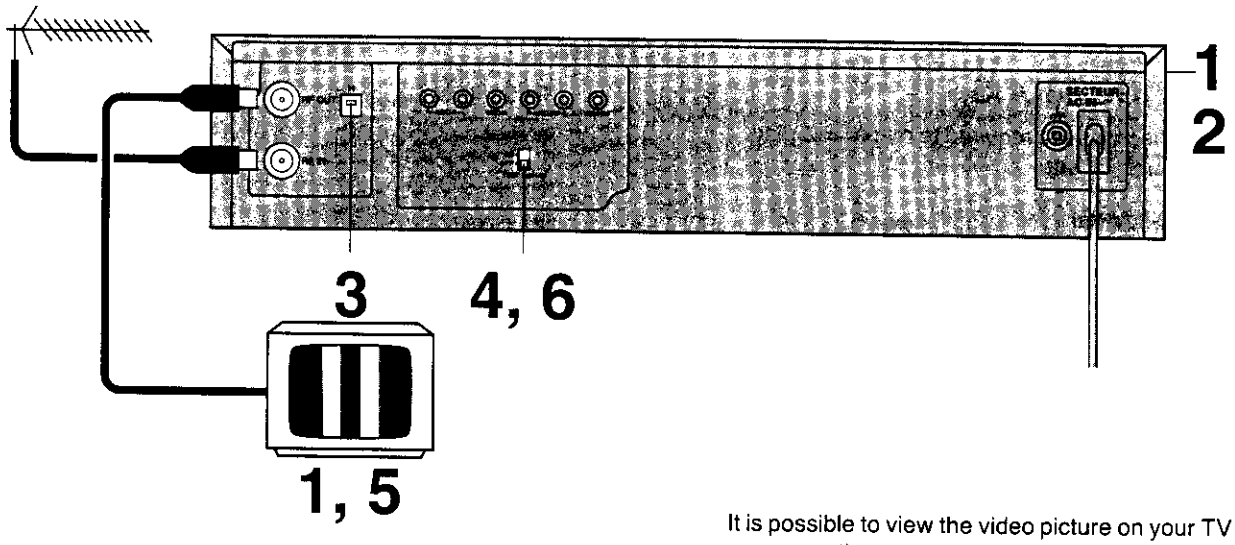


Connection to a TV Set with the Audio/Video Input Sockets



•Connection to a Stereo Amplifier

Tuning the TV to your VTR

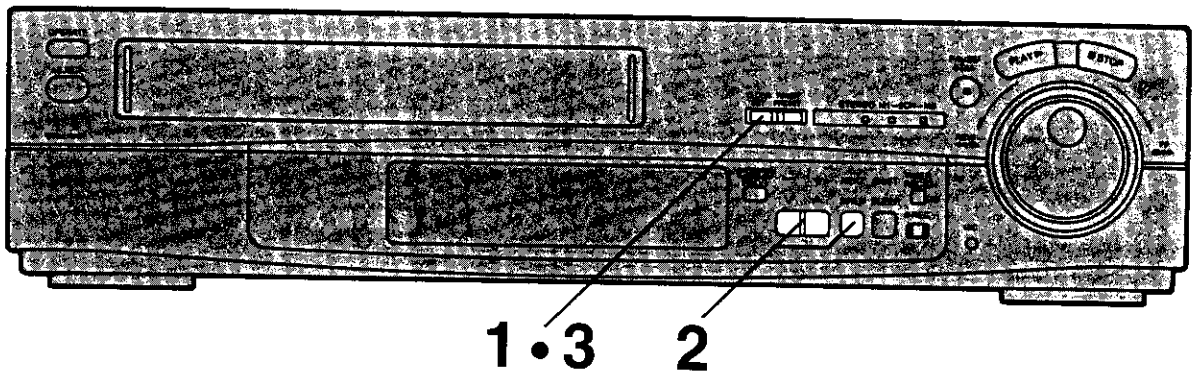


It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.

If you have connected the VTR to the TV through the video and audio input sockets then you do not need to follow the procedure mentioned below.

Operations	Display Symbols	
1	OPERATE	Turn on the TV and VTR.
2	VTR/ TV	Select the VTR mode.
3	H L	Select the video playback channel which is not occupied with any TV station. H: Channel 3 L: Channel 2
4	ON OFF TEST SIGNAL	To generate a test pattern, set **TEST SIGNAL** to ON.
5		Set the TV to an unused position which you wish to use for your video playback. H: Channel 3 L: Channel 2
6	ON OFF TEST SIGNAL	Set **TEST SIGNAL** to OFF.

Setting the Clock of the VTR



The built-in clock is used to activate the timer for automatic recording and must be set to the correct time.

The built-in digital clock employs the 24-hour system.

Preparation

Turn on the VTR.

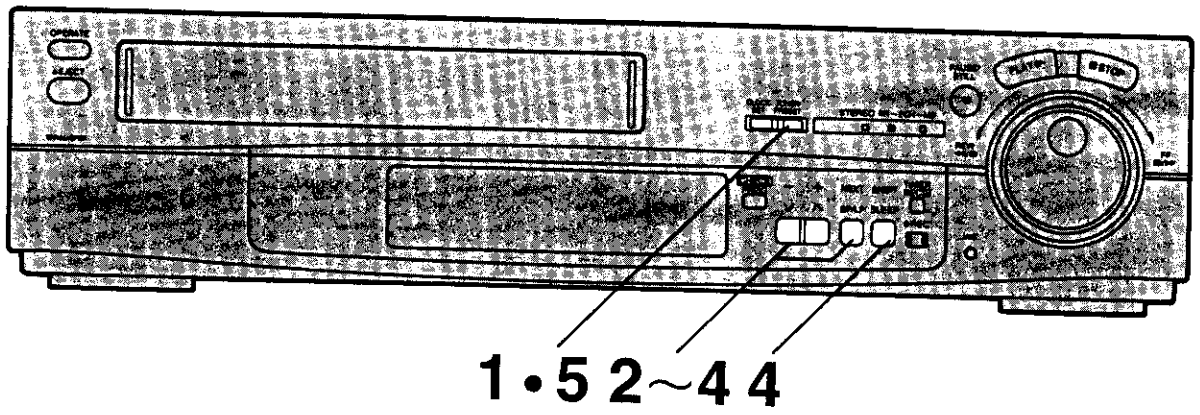
For Example:
Date; 16th, October, 1999
Time; 20:15

Operations		Display Symbols	
1	CLOCK SET		Keep **CLOCK SET** pressed for more than 2 seconds.
2	Set each item by pressing + or − and **NEXT**.		
	− +		Set **Year** "99".
			Set **Month** "10".
			Set **Date** "16".
	NEXT		Set **Hour** "20".
			Set **Minute** "15". • There is no need to press **NEXT**.
3	CLOCK SET		Press **CLOCK SET**. • The clock will start.

Note:
The clock operates for at least 60 minutes by its backup system in the event of power failure.

Time reset function
XX:00.00 can be set by performing the operation steps 1 and 3 during XX:58.00–XX:01.59.

Storing TV Broadcasts into your VTR

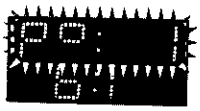


Introduction

The VTR is fitted with its own tuner (just like a normal TV set) and can be pre-set to receive up to 99 TV broadcast stations.

Preparation

- Confirm that the TV is on and the VTR viewing channel is selected.
- Turn on the VTR and press **VTR/TV** to select the VTR mode.
- Turn on the VTR and select the programme position except A1.

Operations	Display Symbols	
1 TUNER PRESET		Keep **TUNER PRESET** pressed for more than 2 seconds.
2 − + NEXT		Select the programme position, then press **NEXT**.
3 + NEXT		Select TV band "I", "III" or "U", then press **NEXT**.
4 − + SHIFT		Search for the required TV station by pressing and holding + or −. Release once the station has been found. • Search speed changes quickly by pressing **SHIFT** simultaneously with + or −. • Press **NEXT** and repeat steps 2–4 for each programme position you want to tune to a station.
5 TUNER PRESET		Press **TUNER PRESET** twice.

Fine Tuning Procedure

1 Keep **TUNER PRESET** pressed for more than 2 seconds, and then press again.

2 Press **NEXT**.

3 Press + or − to obtain the best tuning condition.
- "AFC" Indicator disappears.
- To return the tuning to its former state, press **SHIFT**.

4 Press **TUNER PRESET**.

Blanking of Unoccupied Programme Positions

1 Keep **TUNER PRESET** pressed for more than 2 seconds.

2 Select a programme position which you do not want to tune to a TV station, by using + or −.

3 Press **SHIFT**. ("− −" is displayed.)
- Repeat steps 2 and 3 for other unoccupied programme positions to skip during the selection of the programme positions.
- To cancel the blanking of a programme position, select that programme position on the VTR and then press **SHIFT**.

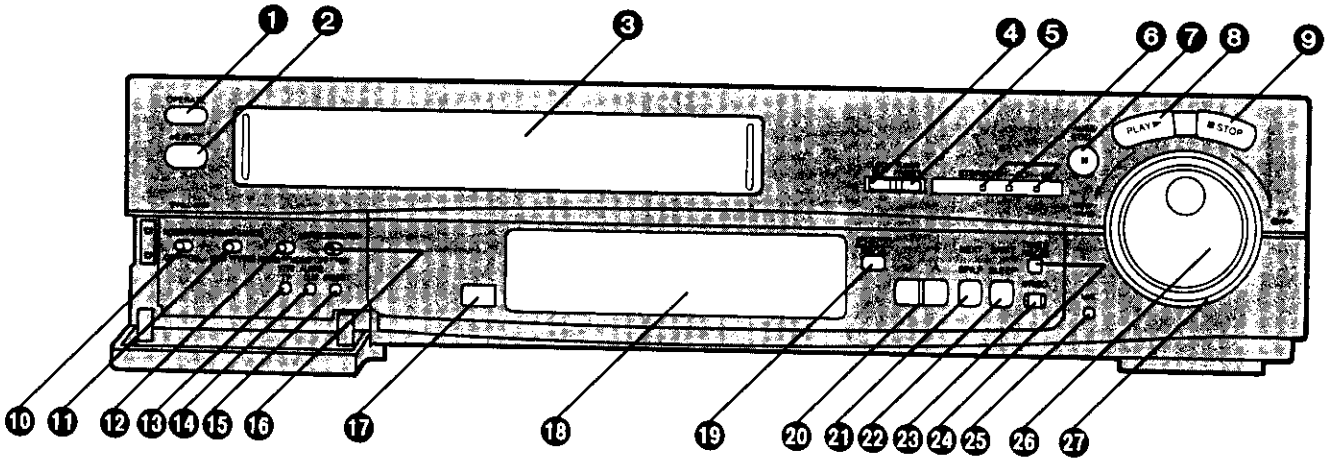
4 Press **TUNER PRESET** twice.

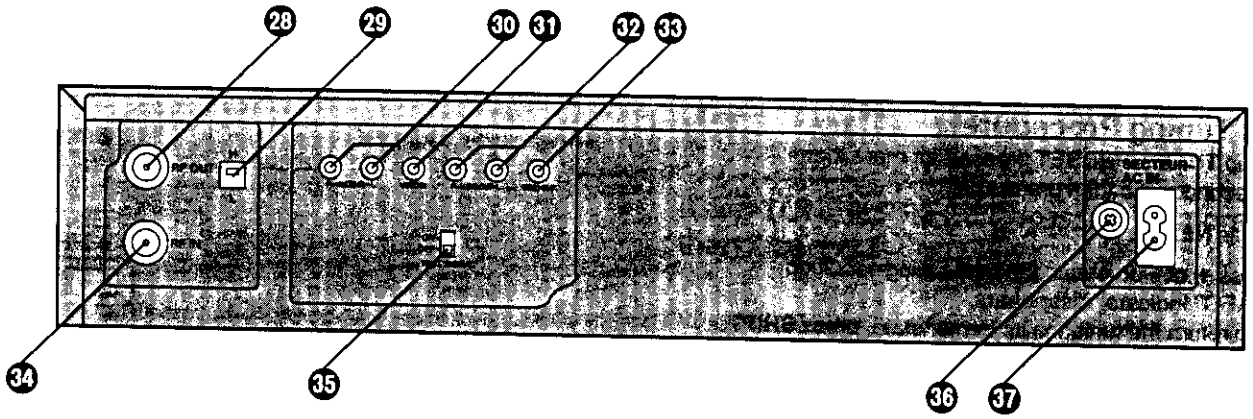
Channel Plan

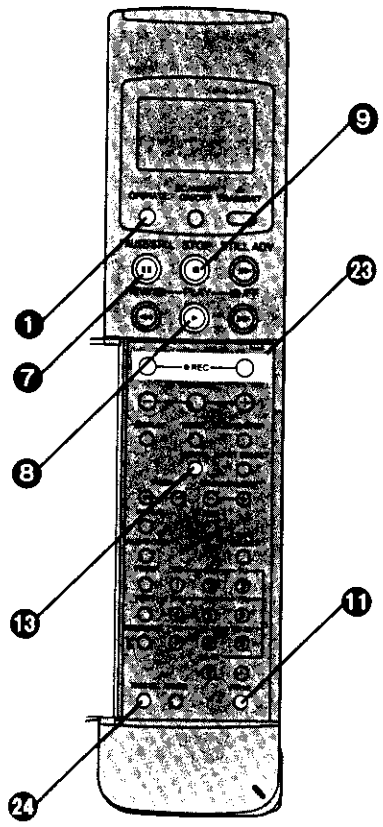
VHF		UHF
I	III	U
1–3	4–11	21–69

Controls and Connection Sockets

This gives a detailed explanation of the function of each button, switch and connection socket.







❶ **OPERATE**
To turn the VTR on and off.

❷ **EJECT**
To eject a video cassette.

❸ **Cassette Compartment**
Insert a video cassette here.

❹ **CLOCK SET**
To set the time.

❺ **TUNER PRESET**
To initiate TV station settings for the tuner.

❻ **Indicator Lamps for M1, M2 and Stereo Reception**
When receiving a TV programme, automatically indicates when a TV programme is broadcast with the NICAM sound system.

❼ **PAUSE/STILL**
During playback: Still picture.
During recording: To interrupt recording.
In the stop mode: Still picture. (Only VTR)

❽ **PLAY**
To start playback. "▷" is lit.

❾ **STOP**
To stop any playback or recording.

⑩ **NOISE FILTER**
OFF: For normal VTR operation.
ON: For playback of a cassette whose recording quality is inferior.

⑪ **REMOTE MODE (VTR 1/2)**
VTR 1: Set at this position on both the VTR and remote controller for normal use with one VTR.
VTR 2: Set at this position when using two Panasonic VTRs.
This allows the remote controller to be set for operating VTR 1 or VTR 2.

⑫ **NICAM/MONO**
NICAM: Normally set at this position.
MONO: Only set at this position to record the normal sound during a NICAM broadcast or if the stereo sound is distorted due to inferior reception conditions.

⑬ **VTR/TV**
To select the VTR mode or TV mode.

⑭ **AUDIO DUB**
To set up the VTR for audio dubbing.
A.DUB indicator lights up.

⑮ **INSERT**
To set up the VTR for insert editing.
INSERT indicator lights up.

⑯ **Hi-Fi/NORMAL MIX**
OFF: Normally set at this position to reproduce the better sound available from the Hi-Fi track.
ON: Both sound tracks are played back mixed together. Use this setting when playing back a cassette tape which has been insert edited or audio dubbed.

⑰ **Infra-red Remote Control Receiver Window**

⑱ **Display**

⑲ **CHECK/PROG**
To select a timer programme number.
"1, 2, 3... or 8" is lit.
To display details of preset timer recording.

⑳ **−+/ ∨ ∧**
To set the clock and timer recording.
To select the required programme position (TV station).

㉑ **NEXT/SP/LP**
To proceed to the next item during setting procedure.
To select the tape speed required for recording.
SP gives the best picture quality.
LP gives the longest recording time.

㉒ **SHIFT/SLEEP**
To blank unoccupied programme position.
To set the time to turn off the VTR automatically.

㉓ **REC**
To start a recording.

㉔ **TIMER REC**
To turn the timer recording function on and off.
◳ is lit or not lit.
The VTR can only be operated manually when the timer recording function is off.

㉕ **MIC**
To connect a microphone for recording.
This socket has priority.

㉖ **Jog Dial**
To locate any desired frame with utmost precision.

㉗ **Shuttle Ring**
In the stop mode: To rewind or fast forward the tape.
In the playback mode:
To search picture backward or forward.
In the still playback mode:
To adjust playback speed backward or forward.
In the rewind or fast forward mode:
To obtain high speed picture.

㉘ **RF OUT**
To connect to the aerial terminal on a TV set.

㉙ **Video Playback Channel Selector**
To select the video playback channel.

㉚ **AUDIO IN**
To connect the audio cable to a video camera or another video recorder.

㉛ **VIDEO IN**
To connect the video cable to a video camera or another video recorder.

㉜ **AUDIO OUT**
To connect the audio cable to a TV or another video recorder.

㉝ **VIDEO OUT**
To connect the video cable to a TV or another video recorder.

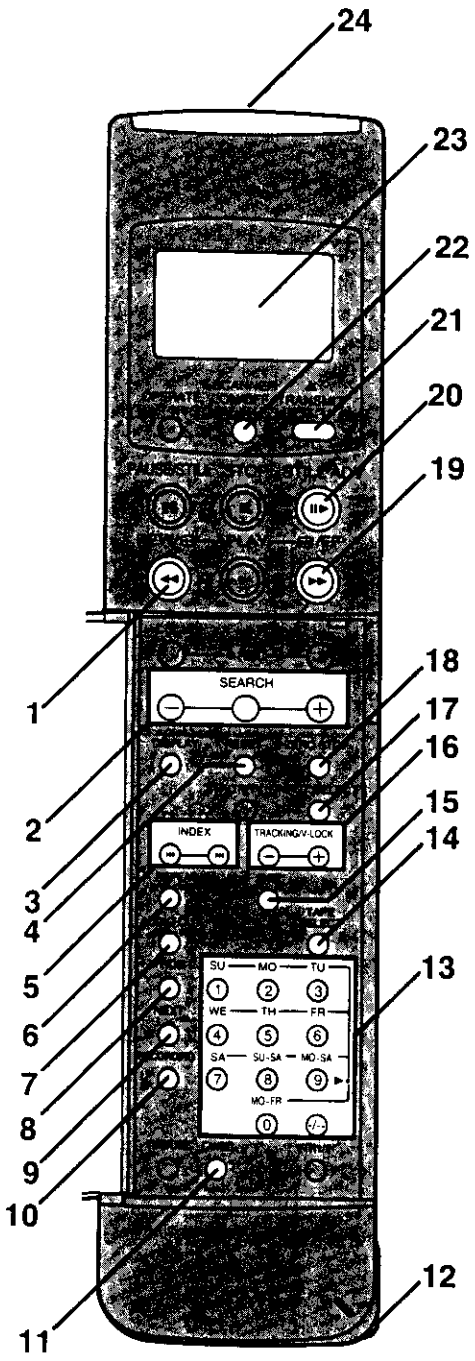
㉞ **RF IN**
To connect to the external aerial.

㉟ **TEST SIGNAL**
The test signal is transmitted on channel L or H.

㊱ **Signal Ground Terminal**
To connect the Signal Ground Terminal to the ground to reduce the noise from microphone cable.

㊲ **AC IN**
To connect to the main power supply.

Infra-red Remote Controller



1 REW (REWIND)

In the stop mode:	To rewind the tape.
In the playback mode:	To search backward.
In the rewind mode: "◁◁" is lit.	To obtain high speed picture.

2 SEARCH

To adjust the playback speed backward or forward.

3 DISPLAY

To change the indication on the VTR Display.

Clock→Counter→Remaining Tape Time

4 RESET

To reset the tape counter (elapsed time) to "0:00.00".

- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

5 INDEX

For the index search function.

6 REPEAT

For the repeat playback function.

7 AUDIO OUT

To select the desired sound mode.

At the every push of this button, the audio output mode changes as follows.

→Stereo→Left→Right→Normal audio track

and the Left and Right Indicators show which sound mode is selected in the following way.

Stereo: Both the Left and Right Indicators are lit.
Left: The Left Indicator is lit.
Right: The Right Indicator is lit.
Normal: Both the Left and Right Indicators are not lit.

8 PROG

For timer recording by using the remote controller.

9 NEXT

To proceed to the next item during setting procedure.

10 RECORDING SP/LP

To select the tape speed desired for recording.
SP gives the best picture quality.
LP gives the longest recording time.

11 CANCEL

To cancel the settings made for a timer recording.

12 Bar Code Reading Section

After the Bar Code Reader is turned on, the tip lights in red.

13 Programme Position Selector Buttons

- To select the programme positions.

9: (9) MO-SA

19: (-/--) → (1) SU → (9) MO-SA

- To programme a timer recording.

14 TAPE SELECT
To set the cassette tape length in order to obtain correct indication of the remaining tape time.
E195: For E30, -60, -80, -120, -180 and -195 tapes.
E240: For E240 tape.
E260: For E260 tape.

15 SKIP
To start cue playback in 30 seconds interval during playback.
- Each press gives a 30 seconds time span up to 4 minutes.

16 TRACKING/V-LOCK
For manual tracking adjustment
The + and − buttons are used to adjust the tracking when, for example, noise bars on the picture are better removed manually than by the automatic digital tracking control. After making a manual adjustment, press both buttons together to return to automatic digital tracking control.

For slow tracking adjustment
When noise bars appear during Still, Still Advance or Slow playback, switch over to slow playback and adjust with the "+" or "−" Button to reduce the noise bars.

For vertical locking adjustment
Use the + and − buttons to minimize any vertical jitter during still-picture playback.

17 INPUT SELECT
To select the "A1" external recording source.

18 ZERO STOP
For the zero stop function.

19 FF (FAST FORWARD)
In the stop mode: To fast forward the tape.
In the playback mode: To search forward.
In the fast forward mode: To obtain high speed picture. "▷▷" is lit.

20 STILL ADV
To advance a still picture during still playback.

21 TRANSMIT
To transmit the data that has been set on the remote controller to the VTR.

22 SCANNER ON/OFF
To turn the Bar Code Reader on and off.

23 Display

24 Infra-red Transmitter
The programming data are transmitted from here to the VTR.

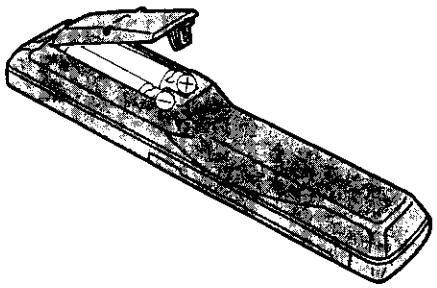
Power source for the remote controller

The remote controller is powered by 2 "AA", "UM3" or "R6" size batteries. The life of the batteries is about one year, although this depends on the frequency of use.
- If the display flickers when a button on the remote controller is pressed, please replace the batteries with new ones.

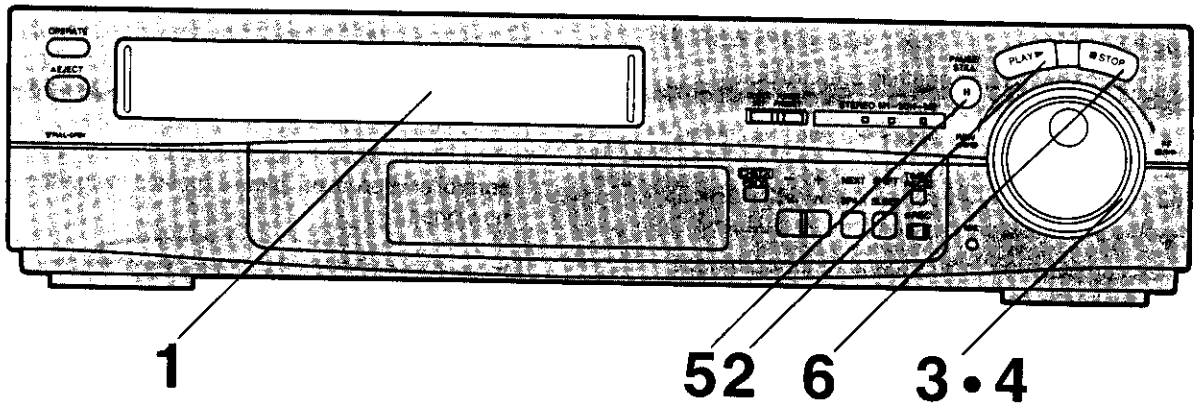
Precautions for battery replacement

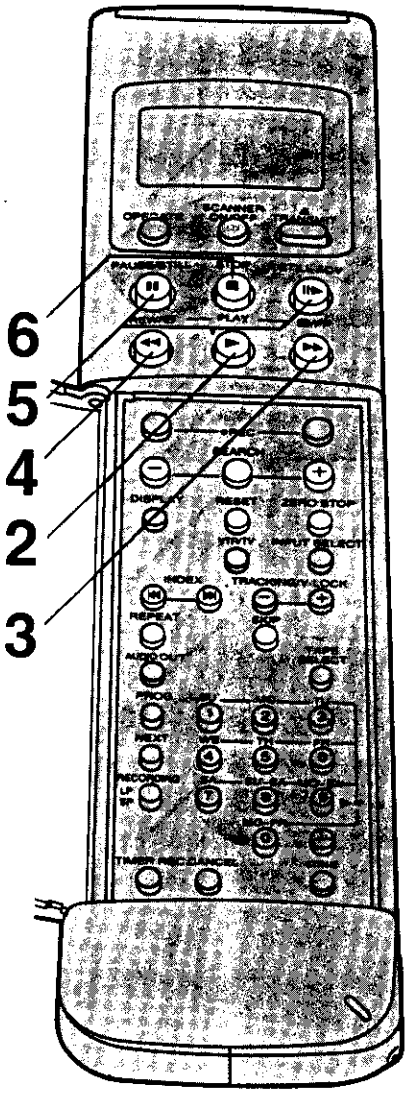
- Load the new batteries with their polarity (+ and −) aligned correctly.
- Do not apply heat to the batteries, or an internal short-circuit may occur.
- If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.

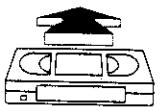
Loading the batteries



Playback





Operations	Display Symbols	
1 		Insert a recorded cassette tape.
2 PLAY ▶		Start viewing the picture.
3 ⏩/FF ⏩		Search forward by tapping **FF**. •To change back to normal playback, press **PLAY**.
4 REW/⏪ ⏪		Search backward by tapping **REW**. •To change back to normal playback, press **PLAY**.
5 PAUSE/STILL ⏸ STILL ADV ⏸		View a still picture. •To advance one frame of the still picture, press **STILL ADV**. •To continue the normal playback, press **PLAY** or **PAUSE/STILL**.
6 STOP ■		Stop viewing the picture.

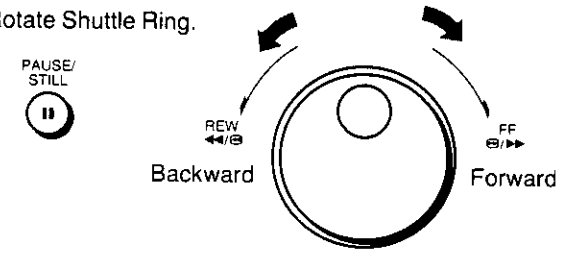
Other Playback Functions

To change the playback speed

Using Shuttle Ring:

1 Press **PAUSE/STILL**.

2 Rotate Shuttle Ring.



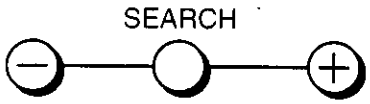
Using Remote Controller:

1 Press **SEARCH**.

2 Press + or – repeatedly.

+: To increase the playback speed forward.

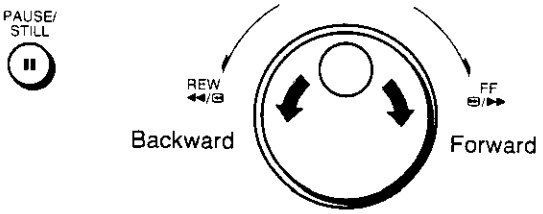
–: To increase the playback speed backward.



To locate the desired picture exactly

1 Press **PAUSE/STILL**.

2 Turn Jog Dial.



To obtain high speed picture during fast forward or rewind

Keep **FF** pressed during fast forward.
Keep **REW** pressed during rewind.

- The same operation can also be performed by turning the Shuttle Ring.

To skip scene

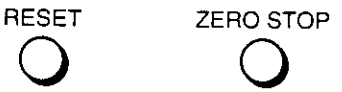
Press **SKIP** during playback.

- The following 30 seconds will be skipped.
- Each press gives a 30 seconds time span up to 4 minutes.

To return to a specified scene

1 Press **RESET** to set the counter to 0:00.00.

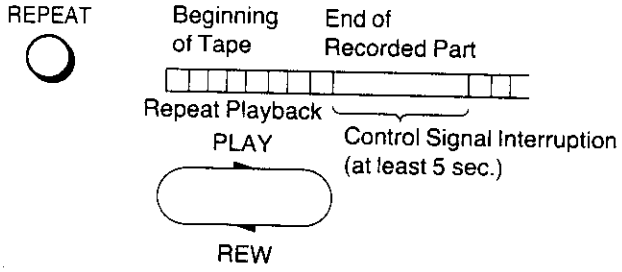
2 After playback, press **ZERO STOP** in the stop mode.



- The tape will be rewound or fast forwarded to 0:00.00.

To playback a recorded part repeatedly

Press **REPEAT** in the stop mode or during playback.



To find the beginning of each recording

For example:

Searching for the 2nd recorded segment in the forward direction.

Press **INDEX** ⏭ twice.

- After finding the specific recorded segment, playback starts automatically.
- For the reverse direction, press **INDEX** ⏮ .
- Up to 20 index signals can be searched for in both directions.

Recording Index Signals

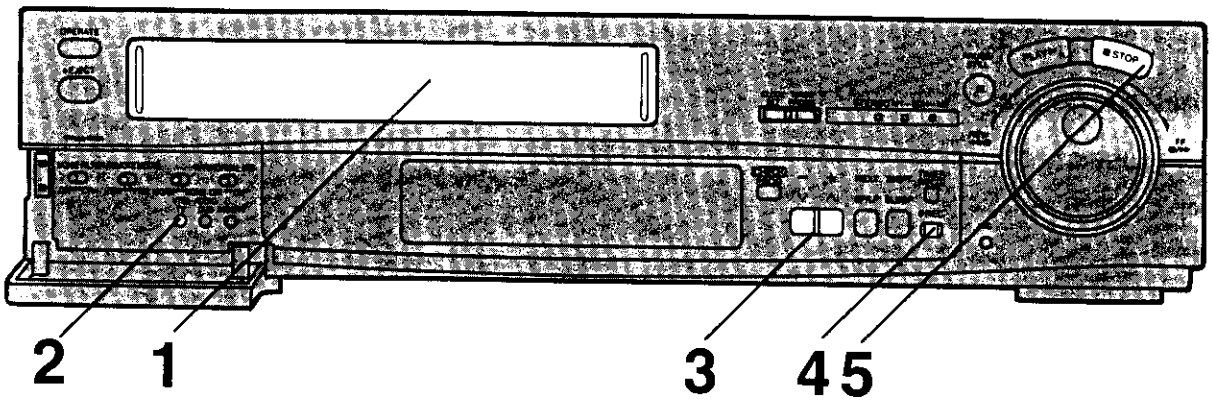
Index signals are recorded in following cases.
WRITE indicator appears on the Display.

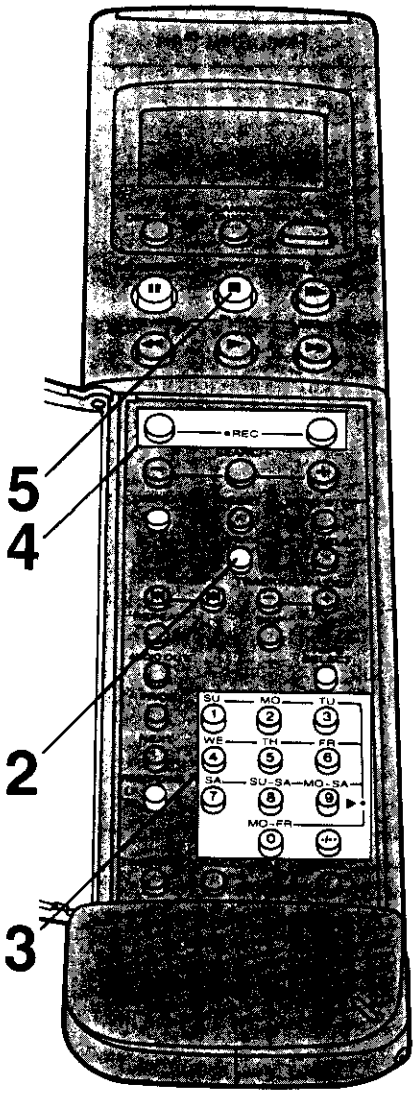
- When a recording is started by pressing **REC**.
- When **REC** is pressed during recording.
- When timer recording is activated.

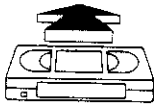
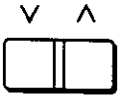
Note:

- Audio reproduction of linear (conventionally recorded) tapes will be monaural when played back on the FM Hi-Fi video recorders.
- Cue, review or slow playback will be automatically released after 10 minutes, and still playback after 5 minutes.
- The Index search function can only work correctly, if the index signals are spaced at least 3 minutes apart in the SP mode and 5 minutes apart in the LP mode.

On-the-spot Recording





Operations	Display Symbols	
1 		Insert a cassette tape. ●If it has already been inserted, press **OPERATE** to turn the VTR on.
2 VTR/ TV ○		Select the VTR mode.
3 		Select TV station.
4 ●REC		Start recording.
5		Stop recording.

To select the desired tape speed

Press **SP/LP** before recording.

To interrupt recording

Press **PAUSE/STILL** during recording.
Press again to continue recording.

To record one TV programme while viewing another programme

1 Refer to the on-the-spot recording operations steps 1 to 4.

2 Press **VTR/TV** to select the TV mode.

3 Select the TV programme on your TV set you wish to view at the present time.

To display the approximate remaining tape time

1 Press **TAPE SELECT** to select the corresponding cassette tape length.

E195: For E30, -60, -80, -120, -180 and -195 tapes.
E240: For E240 tape.
E260: For E260 tape.

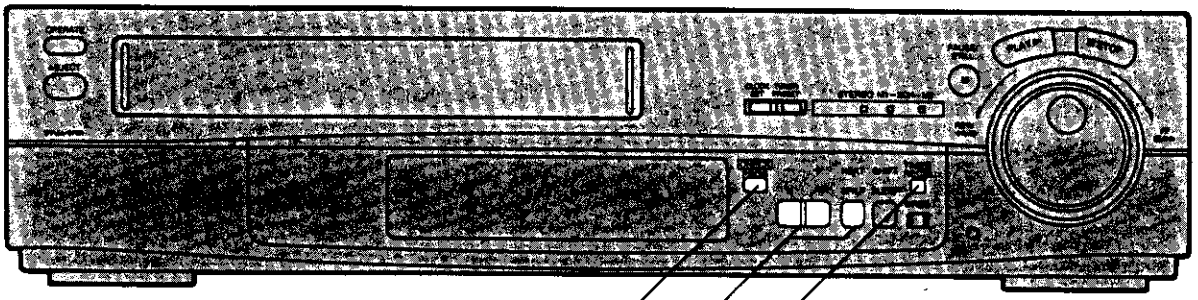
2 Press **DISPLAY**.

→Clock→Counter→**Remaining Tape Time**

Notes:

- When a video cassette with a broken off tab is inserted, the "CC" indication will flash to indicate that recording is not possible.
- The recording pause mode will be automatically released after 5 minutes.

Timer Recording



Up to 8 timer programmes can be recorded up to one month in advance by setting the timer, including daily and weekly programmes.

Preparation

Insert a cassette tape with an intact erasure prevention tab.

For Example:

Timer Programme number;	1
Programme position (channel);	2
Date;	27th, October
Starting time;	20:02
Ending time;	21:30
(present date;	16th October)

Operations	Display Symbols	
1 CHECK PROG		Select **Timer Programme number** "1".
2 Set each items by pressing + or − and **NEXT**.		
− +		Set **Programme position** (channel) "2".
		Set **Date** "27". •For daily and weekly recording, see next page.
		Set **Starting time** (hour) "20".
		Set **Starting time** (minute) "02".
NEXT		Set **Ending time** (hour) "21".
		Set **Ending time** (minute) "30". •There is no need to press **NEXT**.
3 TIMER REC		To activate timer recording, press **TIMER REC**.

Setting for Daily and Weekly Timer Recording

In the Date setting step, press – button repeatedly until the desired day(days) is displayed.

Daily recording

From Sunday to Saturday

From Monday to Saturday

From Monday to Friday

Weekly recording

For example, Sunday

Timer Recording from External Signal Source

If Timer Recording is performed by a unit connected to the Audio/Video input sockets, select the A1 indicator for the programme position.

Selecting the Desired Tape Speed

After step 2, press **NEXT** and select SP or LP by pressing + or –.

Setting other Programmes in Succession

Repeat steps 1 and 2.

Checking a Timer Programme

Select the timer programme number to be checked by pressing **CHECK/PROG.**

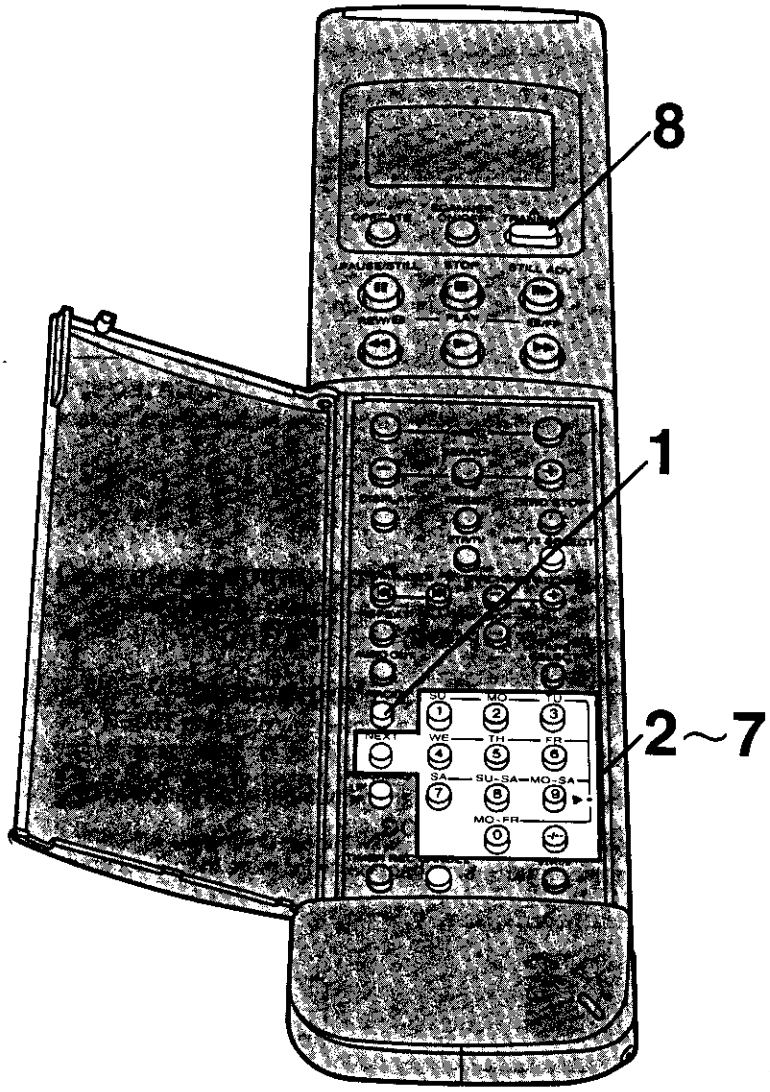
Cancelling a Timer Programme

1 Release from the standby mode by pressing **TIMER REC.**

2 Select the timer programme number to be canceled by pressing **CHECK/PROG.**

3 Press + and – simultaneously for more than 3 seconds.

Using the Remote Controller



For Example:

Programme position (channel); 27
Date; 3rd. November
Starting time; 20:02
Ending time; 21:30
(Present date; 16th, October)

Note:
If no operation is performed on the remote controller for more than 60 seconds, the Display turns off.

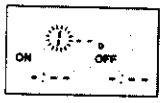
Preparation

Insert a cassette tape with an intact erasure prevention tab.

Operations

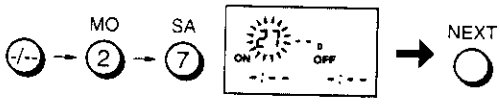
1 Press **PROG.**

PROG



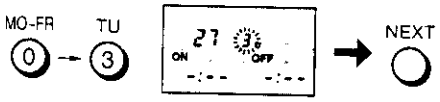
2 Enter **Programme position** "27", then press NEXT.

MO SA NEXT



3 Enter **Date** "3", then press **NEXT.**

MO-FR TU NEXT



4 Enter **Starting time** (hour) "20", then press **NEXT.**

MO MO-FR NEXT

5 Enter **Starting time** (minute) "02", then press **NEXT.**

MO-FR MO NEXT

6 Enter **Ending time** (hour) "21", then press **NEXT.**

MO SU NEXT

7 Enter **Ending time** (minute) "30".

TU MO-FR

8 Press **TRANSMIT.**

TRANSMIT

The transmitted data appears on the display and a repeated bleep confirms the reception.

Daily Timer Recording

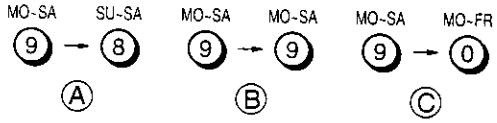
For this timer function, several groups of days can be selected.

Ⓐ Daily recording from Sunday to Saturday

Ⓑ Daily recording from Monday to Saturday

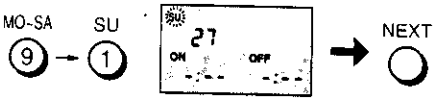
Ⓒ Daily recording from Monday to Friday

Press the following numeric button within 5 seconds to select the group of days in step 3.



Weekly Timer Recording

Press the 9 button and then the numeric button within 5 seconds in step 3.
For example, SU (Sunday)



Timer Recording from External Signal Source

If Timer Recording is performed by a unit connected to the Audio/Video input sockets, press **INPUT SELECT** to select the A1 indicator for the programme position.

Selecting the Desired Tape Speed

Press **RECORDING SP/LP** in any of step 2~7.

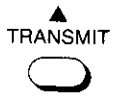
Checking a Timer Programme

- The VTR must be turned on, or the timer recording indicator "◳" is lit.
- Make sure that the display of the Remote Controller is not on.

Press **TRANSMIT** repeatedly until the desired timer programme number is displayed.

Cancelling a Timer Programme

1 Press **TRANSMIT** repeatedly until the desired timer programme number is displayed.



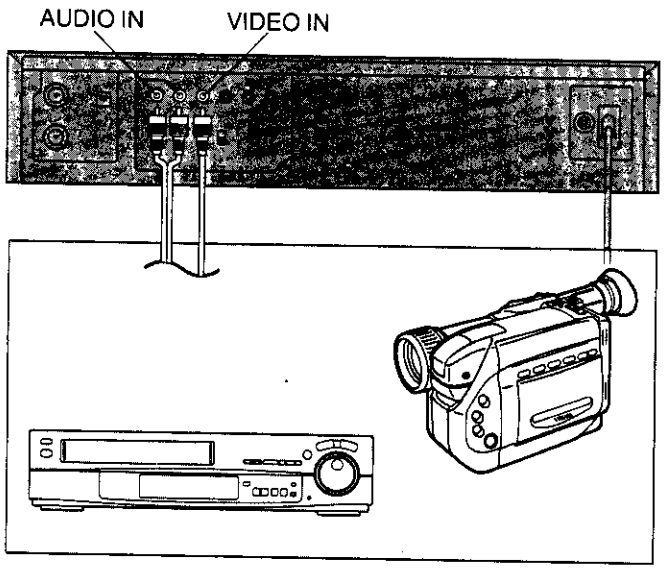
2 Press **CANCEL**.

Editing

Assembly Editing

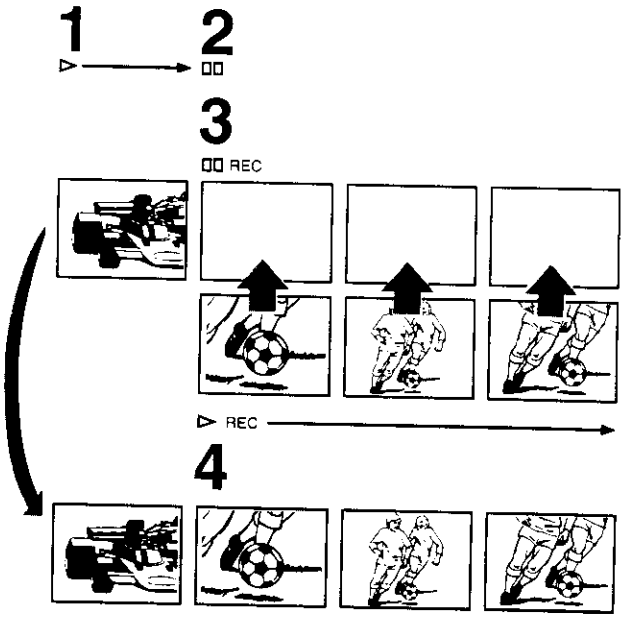
This function can be used to make up an edited tape from other recordings or video sources.

This enables you to record a new segment immediately after a previously recorded segment.



Preparation

- Connect a movie camera or another VTR to this VTR as shown.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1.



Operations

1 Search for the end of the previous recording.

2 Press **PAUSE/STILL** at the end point.

3 Set for the new recording by pressing **REC**.

4 Start the new recording by pressing **PAUSE/STILL** again.

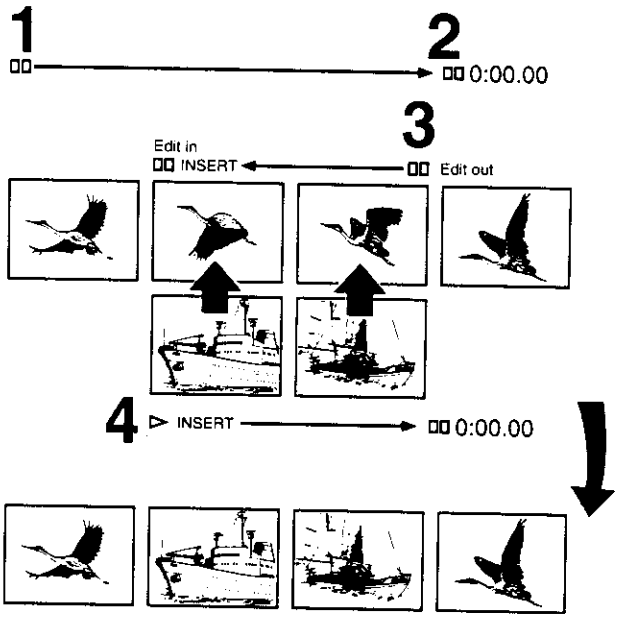
Note:
The new sound will be recorded on both the normal and Hi-Fi sound tracks, only monaural sound recording is possible on the normal sound tracks.

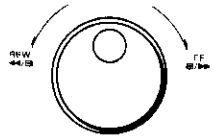
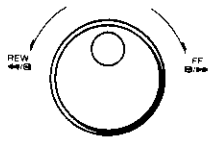
Insert Editing

This is used to substitute one scene for another providing.

Preparation

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1.



Operations	Display Symbols	
1		Press **PAUSE/STILL**.
2	 RESET	Search for the Edit out (ending) point, and set the counter to 0:00.00 by pressing **RESET**.
3	 INSERT	Search for the Edit in (starting) point, and press **INSERT**. • If you want to replace the sound too, press **AUDIO DUB** as well.
4		Start insert editing by pressing **PAUSE/STILL**. • The insert editing will finish when the counter reaches 0:00.00.

Note:

Insert Editing cannot be used on blank sections of a tape. In this case use Assembly Editing first.

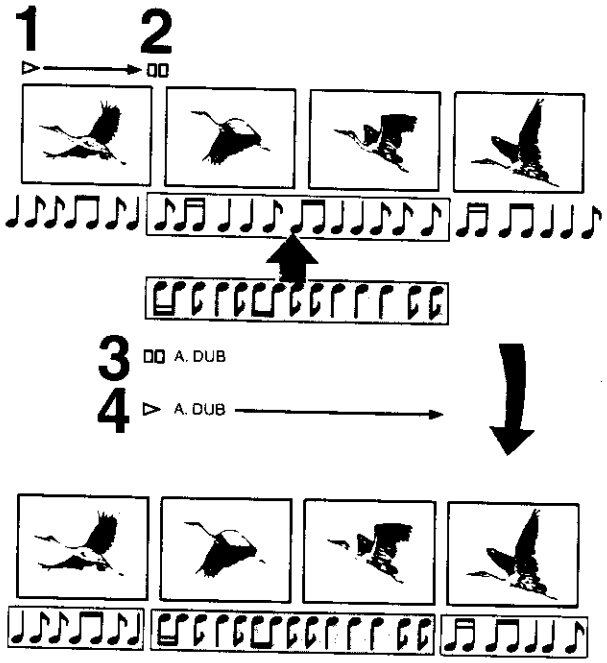
The new sound will be recorded on the Hi-Fi sound track. If AUDIO DUB selected, the new sound will also be recorded on the normal sound track.
Only monaural sound recording is possible on the normal sound tracks.

Audio Dubbing

Note that the original sound on the "normal" (mono) sound track will be completely erased during audio dubbing.

Preparation

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1.



Operations		Display Symbols	
1	PLAY		Search for the starting point for audio dubbing.
2	PAUSE/ STILL		Press **PAUSE/STILL** at the starting point.
3	AUDIO DUB		Set for audio dubbing by pressing **AUDIO DUB**.
4	PAUSE/ STILL		Start recording the new sound by pressing **PAUSE/STILL**. • Stop recording by pressing **STOP**.

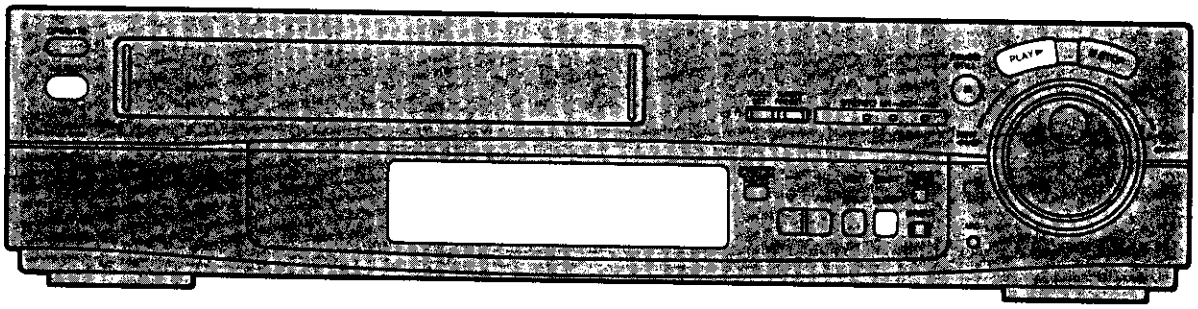
Note:

The new sound will be recorded on the normal sound track of the tape, and the original sound will remain on the Hi-Fi sound track. Only monaural sound recording is possible on the normal sound track.

To hear the new sound, select the normal sound track by pressing **AUDIO OUT**.

To hear the new sound and original sound mixed together, set **Hi-Fi/NORMAL MIX** to ON.

Other Functions



Automatic VTR off time setting

Press **SLEEP** for the desired time.

- Each press gives a 30 minutes time span up to 9 hours.
- To cancel the setting time, press **SLEEP** repeatedly to set 0:00.

NTSC Playback

Tapes recorded in the NTSC system can be played back with this VTR via a PAL system TV set.

A note about NTSC playback on PAL TV function

On some TVs, the playback picture may roll up or down: adjust this using the V-HOLD control on the TV. TVs not equipped with a V-HOLD control cannot correct this condition. The playback picture will shrink vertically, and black bars will appear both on the top and bottom of the screen. This is not an indication of a malfunction.

- During Cue, Review, Still or Slow playback, the picture may not be in colour.
- Recording in the NTSC system is not possible with this VTR.
- This function is designed only to allow the playback of tapes recorded by NTSC signals on a PAL system TV. The NTSC signal is not completely converted to a PAL signal. For this reason, images played back by this function cannot be recorded on another VTR.
- When playing back a tape recorded in the NTSC system SLP mode, the "LP" indication will light up in the Display.

Other Automatic Functions

Automatic playback

When a cassette without an erasure prevention tab is inserted, the VTR starts playback automatically.

VTR-off playback

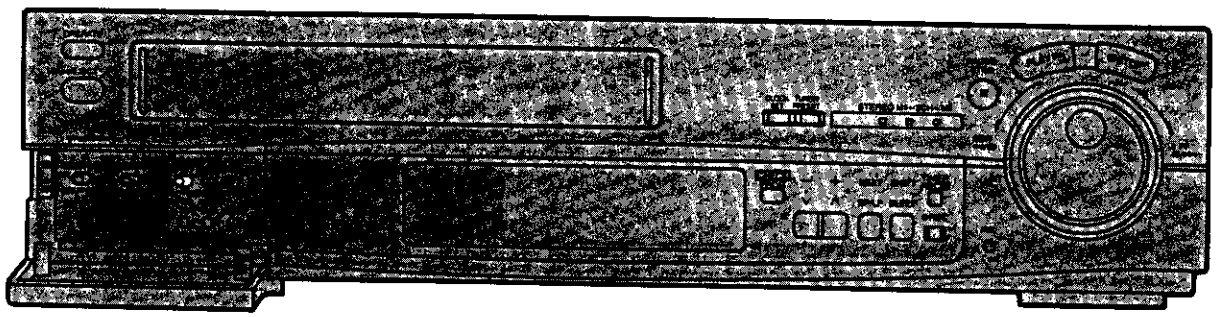
When the VTR is off, an inserted cassette can be played back by pressing **PLAY**.

Automatic rewinding

When the tape reaches its end during recording (except for timer recording) or playback, it will automatically be rewound to the beginning.

Automatic switching off and ejection

When the VTR is switched off, an inserted cassette can be ejected simply by pressing **EJECT**. The VTR will eject the cassette and automatically turn itself off again.



The NICAM Broadcast System

NICAM is a 2 Channel sound broadcast system to provide either a high quality stereo sound track or 2 independent MONO sound tracks, M1 and M2.

NICAM programmes are always accompanied by standard sound broadcasts and you can select the desired sound with **NICAM/MONO** (when recording) or with **AUDIO OUT** (when playback).

The NICAM digital stereo sound can only be recorded on the Hi-Fi audio track.

When a stereo, dual-soundtrack or mono NICAM programme is being received, the indicators are lit to inform you of the type of broadcast.

Reception of a NICAM Stereo Broadcast

When the STEREO indicator is lit, set **NICAM/MONO** to NICAM to be able to record on the Hi-Fi sound track in stereo.
The Audio cable must also be connected to a stereo TV in order to hear the NICAM sound in stereo.

Reception of a NICAM Dual-Sound Broadcast

When the M1 and M2 indicators are lit, set **NICAM/MONO** to NICAM if you want to record both channels on the Hi-Fi sound track. M1 is the left-hand channel and M2 is the right-hand channel.

Reception of a NICAM Monaural Broadcast

When a NICAM monaural broadcast is being received, only the M1 indicator is lit. To hear such a signal on both channels and to record it on both channels of the Hi-Fi track, set **NICAM/MONO** to NICAM.

- To record the regular sound (ordinary normal sound) on the FM audio tracks when a NICAM programme is received, set **NICAM/MONO** to MONO.

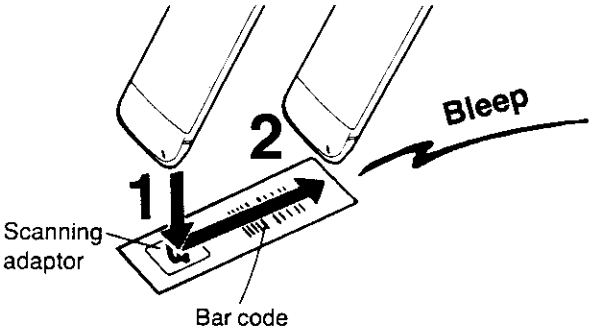
Important Note for the NICAM System:
When this VTR tuner is switched on, it will automatically switch to a NICAM broadcast, if NICAM is being transmitted. During test transmissions, it is possible that the sound received doesn't correspond to the picture being viewed. In order to receive a synchronized sound and picture, select monaural sound with either **AUDIO OUT** or with **NICAM/MONO**. This will only apply until NICAM transmissions are fully operational.
At this time the NICAM signal is transmitted on stereo channels only, since the M1 and M2 formats are not yet available. Even if the soundtrack is in MONO the stereo indicator will remain illuminated.

Bar Code Operation

Scanner Preparation

Operating the Remote Controller

This remote controller also operates as a digital-scanning bar code reader.
Press **SCANNER ON/OFF** to turn it on.
If the remote controller is not operated within 60 seconds (within 4 minutes when setting the clock time), the lamp and Display turns off.
When the lamp is not lit, press **SCANNER ON/OFF** to turn it on again.



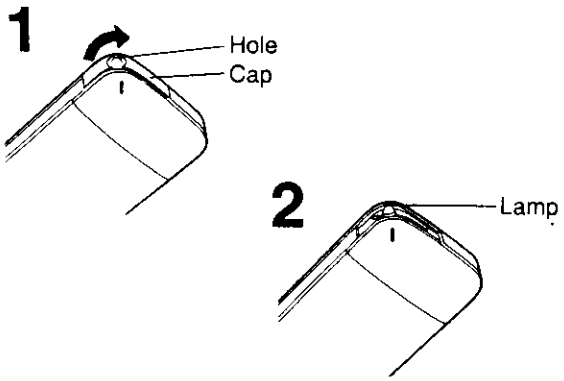
Reading the bar codes

1. Fit the remote controller to the scanning adaptor.
2. Trace the bar code quickly in the direction of the arrow, ensuring that you trace it completely past the last bar.
   - The "Bleep" sound indicates that the bar code has been read completely.

When the Bar Codes Cannot be Read

Although the lamp in the tip of the Bar Code Reading Section lights up:
- No figures appear in the Display
- No beep sounds is heard;

The tip of the Bar Code Reading Section is probably clogged with dirt.



Cleaning

1. Remove the cap of the Bar Code Reading Section.
   - Remove dirt and dust from the hole of the cap.
2. Gently wipe the tip of the lamp with a soft cloth.
   - Reattach the cap by inserting it until it locks with a click.

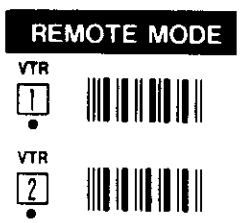
Remote Control Modes

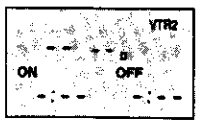
Adjust the remote control mode of the remote controller to the same remote control mode (VTR 1 or VTR 2) as selected on the VTR itself.

When Remote Control Mode "VTR 2" is selected on the VTR

Trace the "VTR 2" bar code on the Programming Sheet.
- "VTR 2" will appear in the remote controller display.

When the "VTR 1" bar code is traced, the "VTR 2" indication will disappear and the remote control mode is changed back to "VTR 1".

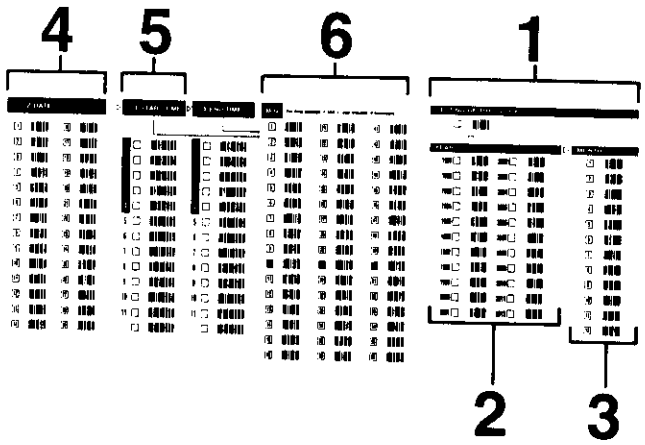


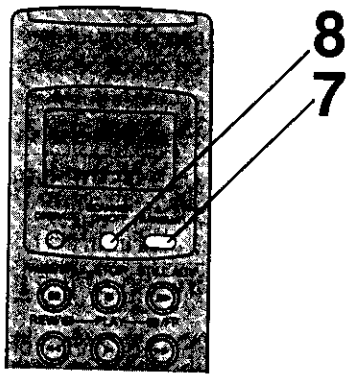


Note: There is no indication on the display for "VTR 1".

Setting the Clock

Read in the following data successively by tracing bar codes 1 to 6 on the programming sheet.





Preparation

Turn on the VTR and the remote controller.

For Example:

Date; 16th, October 1999
Time; 20:15

Operations

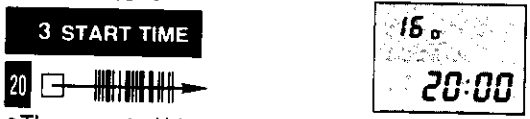
1 Trace the code for **SETTING OF THE CLOCK**.

2 Trace the bar code **YEAR** "1999".

3 Trace the bar code **MONTH** "10".

4 Trace the bar code **DATE** "16".

5 Trace the bar code for the hour **START TIME** "20".



- The repeated bleep sound indicates correct bar code reading and readiness for transmitting the data to the VTR.

6 Trace the bar code for the minute **MIN** "15".

- The bleep sound will be heard again.

7 To transmit the data to the VTR, press **TRANSMIT** toward the VTR.

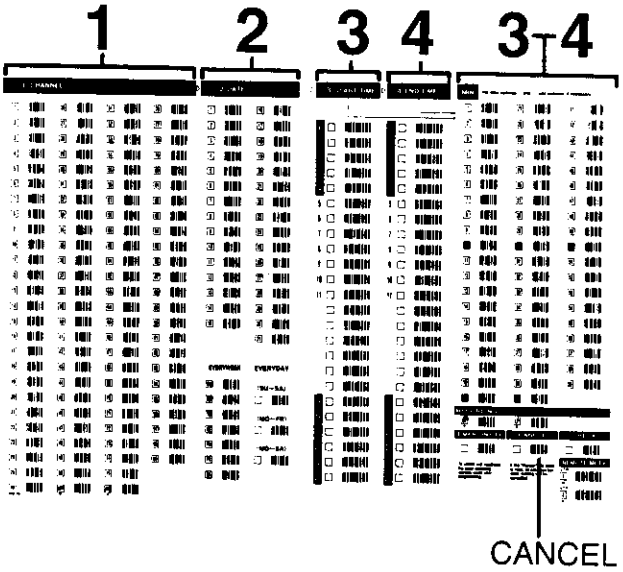
- The transmitted data appears on the display, and a bleep sound confirms proper reception.

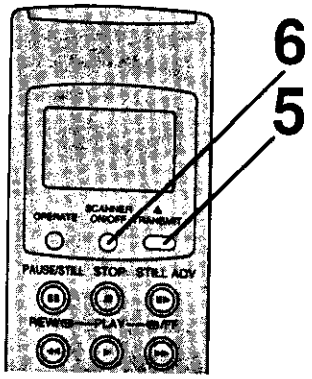
8 To turn off the remote controller, press **SCANNER ON/OFF**.

Timer Recording

Setting Timer Recordings from Bar Codes

Successively scan the data for the programme position (channel), day, starting time and ending time by tracing bar codes 1 to 4 on the programming sheet.





Preparation

Turn on the VTR and the remote controller.

For Example:

Programme position (channel); 4
Date; 3rd, November
Starting time; 20:02
Ending time; 21:30
(Present date; 16th, October)

Operations

1 Trace the bar code for **CHANNEL** "4".

2 Trace the bar code for **DATE** "3".

3 Set **Starting time.**

- Trace the bar code for **START TIME** "20".

- Trace the bar code for **MIN** "2".

4 Set **Ending time.**

- Trace the bar code for **END TIME** "21".

The repeated bleep sound indicates readiness for data transmission to the VTR.

- Trace the bar code for **MIN** "30".

The bleep sound will be heard again.

5 To transmit the data to the VTR, press **TRANSMIT** toward the VTR.

- The transmitted data appears on the display of the VTR and a bleep sound confirms proper reception.

Programming a Series Timer Recordings

Trace the CANCEL bar code.
Repeat the required steps 1 to 5 for each timer recording.

6 To turn off the remote controller, press **SCANNER ON/OFF.**

Daily Timer Recording

For this time setting, three day patterns can be selected:

Ⓐ Daily recording from Sunday to Saturday

Ⓑ Daily recording from Monday to Friday

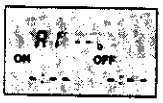
Ⓒ Daily recording from Monday to Saturday

Weekly Timer Recording

Trace the bar code for the day of the week in the EVERYWEEK column.
For example, SU (Sunday)

Timer Recording from an External Signal Source

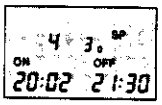
If a timer recording is to be made from a signal source that is connected to the Audio/Video input sockets, the "AV" bar code in the CHANNEL column must be traced for the programme.



AV2 cannot be selected with bar code.

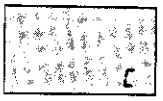
Selecting the Desired Tape Speed

Trace the bar code for RECORDING "SP" or "LP".



Turning the Timer on and off

After programming a timer recording, the timer recording indicator "⏲" lights up, and the VTR can no longer be used for normal recording and playback. To make it possible to use the VTR, trace the TIMER ON/OFF bar code and transmit to the VTR (the timer recording indicator "⏲" will go out). To reactivate the timer again, trace the TIMER ON/OFF bar code again and transmit to the VTR (the "⏲" indicator will light again).

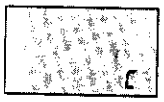


Checking a Timer Programme

The VTR must be turned on, or the timer recording indicator "⏲" is lit.

1 Trace the CHECK bar code.

2 Transmit the data to the VTR.
- To check the settings for the next timer recording, press **TRANSMIT**.



Cancelling a Timer Programme

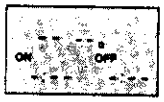
The data for the timer recording must first be displayed.

1 Trace the CHECK bar code.

2 Transmit the data to the VTR.

3 Trace the CANCEL bar code.

4 Transmit the data to the VTR.



Before Requesting Service

Before requesting service, check the following points once again.

VTR will not operate correctly

SYMPTOM	CAUSE	REMEDY	CHECKED
VTR display is not illuminated.	Mains lead is not connected.	Reconnect mains lead to VTR.	
VTR display is illuminated but VTR will not operate.	VTR is in timer mode.	Press **TIMER REC** to operate VTR manually.	
	Safety devices are operating.	Disconnect mains lead and wait for 1 minute. Reconnect mains supply and check functions.	
	Condensation may have formed.	Do not operate VTR for 1 hour.	
VTR will operate for a few seconds then power off.	Tape is jammed in VTR.	If tape is jammed in VTR, do not attempt to remove, as this may cause damage. Consult your dealer for advice.	

Playback will not operate correctly

SYMPTOM	CAUSE	REMEDY	CHECKED
Picture noisy or not in colour. Horizontal bars or lines run down the screen.	Tracking is not correct.	Adjust the tracking. See page 13.	
	TV set is not tuned to VTR.	Operate **TEST SIGNAL** on VTR and check TV tuning. See page 6.	
	Tape is recorded incorrectly.	Check that aerial is connected to VTR. See page 5.	
		Check that each programme position is tuned to the correct station. A snowy picture on one or more programmes may indicate that VTR is tuned to weak station or wrong transmitter. Re-tune if necessary. See page 8.	
	Video heads are clogged or worn.	Consult your dealer for further advice.	
	Tape defective due to surface damage or wear.	Confirm with another tape if noise free and replace the defective tape.	
VTR rewinds automatically during playback.	Tape end detector works during playback due to damaged tape.	Replace the defective tape.	

Recording will not operate correctly			
SYMPTOM	**CAUSE**	**REMEDY**	**CHECKED**
"📼" indication flashes whenever recording is attempted.	Erasure prevention tab on cassette is broken off.	Use tape with intact erasure prevention tab, or cover tab hole with adhesive tape, if original recording is no longer required.	
Picture is recorded with noise or blank screen.	Aerial or aerial lead is defective.	Check aerial connection to VTR. See page 5. Check your normal TV picture. If there is no picture, check your aerial.	
	VTR is not correctly tuned.	Re-tune VTR. See page 8. Ensure input selector set to TV programme.	
	Input selector is set to A1.	Select the required TV programme.	
Timer recording cannot be performed.	Clock or calendar is incorrectly set.	Check clock and calendar. Set to present time. (Note this is a 24 hour clock.) See page 7.	
	Clock is flashing 0:00.	Set clock to present time.	
	Recording start or end time settings is incorrect.	Set recording start and end time correctly. Try a short timer recording a few minutes ahead of the present time to confirm correct operation. See page 18.	
	VTR is not set for timer recording.	Press **TIMER REC** after programming for timer recording.	
AV external recordings cannot be made.	Input selector is not correctly set.	Select A1.	
	External AV connections are incorrect.	Check that connections for external video and audio source are correct. See page 22.	

Remote controller will not work correctly			
SYMPTOM	**CAUSE**	**REMEDY**	**CHECKED**
Remote controller does not operate correctly.	Remote controller transmitter beam is not reaching VTR.	Ensure that remote controller is being pointed at VTR and that transmitter beam is not obstructed.	
	Distance is too far.	Use remote controller within 7 m of VTR. If this range is not possible, replace batteries.	
	Batteries are exhausted.	Replace batteries. Note precaution for replacement on page 13.	
	Batteries are incorrectly fitted with (+/−) reversed.	Fit batteries correctly as shown on page 13.	
Bar code reading is not possible.	Remote controller is in power saving condition.	Press **SCANNER ON/OFF** to turn it on again.	
	Bar code is not traced correctly.	Practice tracing the bar code from left to right. Each bar code should take around half a second to trace. A beep indicates bar code is read correctly.	
	Bar code sensor cap is blocked.	Remove sensor cap and clean as shown on page 27.	
Bar code data cannot be transmitted to VTR.	VTR is operating.	Stop VTR.	
	Timer record memory is full.	Cancel timer programme to enter a new timer programme or wait until one timer recording has taken place.	
	Bar code reading is not followed by a repeated bleep.	Read bar code again.	

Precautions

Please read these cautions before you operate this VTR.

Avoid Sudden Changes in Temperature

If the VTR is suddenly moved from a cold place to a warm place, moisture may form on the tape and inside the VTR. In this case, the Dew Indicator "☃" will flash on and off and the VTR will not operate.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increase in temperature. Do not block or cover these holes. Especially avoid covering the holes with soft materials such as cloth or paper.

Keep away from High Temperature

Keep the VTR away from extreme direct heat such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets away

Never bring a magnet or magnetized object near the VTR because it will adversely affect the performance of the VTR.

No Fingers or Other Objects Inside

Touching internal parts of this VTR is dangerous, and may cause serious damage to the VTR. Do not attempt to disassemble the VTR. There are no user serviceable parts inside.

Keep Water away

Keep the VTR away from flower vases, tubs, sinks, etc.
CAUTION: If liquids are spilled into the VTR, serious damage could occur. If you spill any liquid into the VTR, consult qualified service personnel.

Lightning

To avoid damage by lightning, disconnect the aerial plug from the VTR.

Cleaning the VTR

Wipe the VTR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. And do not use compressed air to remove dust.

Stacking

Place the VTR in a horizontal position, and do not place anything heavy on it.

Video Head Clogging

The video heads place picture signals on the tape during recording and read picture signals from the tape during playback and they are, therefore, of critical importance for the picture quality. If the VTR is used over extremely long periods of time, these heads may still become dirty and clogged. In such a case, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such a symptom case occurs, have the recorder checked by qualified service personnel.

If Dew Condensation Forms in the VTR

Condensation may form in the VTR if:

- The VTR is in a room when the heater has just been turned on.
- The VTR is in a room with steam or high humidity.
- The VTR is brought from cold surroundings into a well-heated room.
- The VTR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

When dew forms in the VTR:

The Dew Indicator "☃" on the Multi-Function Display will flash on and off and all the function buttons are made non-operational to protect the tape and the video heads. When the Dew Indicator flashes, wait until this indicator disappears.

- If dew condensation forms inside the VTR while the OPERATE Switch is off, it will turn on automatically and the Dew Indicator will flash on and off. As soon as the dew condensation has been dissolved, the VTR will turn itself off again.

Specifications

NV-HD100EA

Information for Your Safety

Power Source:	230 V AC 50–60 Hz
Power Consumption:	Approx. 27 watts

Video Recording System:	2 rotary heads, helical scanning system		
Video Heads:	4 heads		
Tape Speed:	SP; 23.39 mm/sec. LP; 11.7 mm/sec.		
Tape Format:	VHS tape		
Record/Playback Time:	SP; 240 min. with NV-E240 LP; 480 min. with NV-E240		
VIDEO			
Television System:	CCIR; 625 lines, 50 fields, PAL colour signal EIA; Standard (525 lines, 60 fields), NTSC colour signal		
Modulation System:	Luminance; FM azimuth recording Colour signal; converted subcarrier phase shift recording		
Input Level:	VIDEO IN (PHONO);	1.0 Vp-p,	75 ohm
Output Level:	VIDEO OUT (PHONO);	1.0 Vp-p,	75 ohm
	RF Modulated;	VHF channel 2 or 3,	75 ohm, terminated
AUDIO			
Input Level:	AUDIO IN (PHONO);	more than −10 dBV,	more than 47 kohm
	MICROPHONE (M3);	−70 dBV	
Output Level:	AUDIO OUT (PHONO);	−8 dBV,	less than 1 kohm
Audio Track:	1 track (Normal-mono only), 2 channels (Hi-Fi sound-stereo)		
Video Horizontal Resolution:	Colour; more than 240 lines (SP)		
Signal-to-Noise Ratio:	Video; more than 43 dB (SP)		
Dynamic Range:	Audio; more than 90 dB (Hi-Fi audio track)		
Audio Frequency Response:	20 Hz–20 kHz		
Wow and Flutter:	0.005% Wrms/Hi-Fi		
Operating Temperature:	5°C–40°C		
Operating Humidity:	35%–80%		
Weight:	5.1 kg		
Dimensions:	430 (W)×96 (H)×362 (D) mm		
Standard Accessories:	1 pc. DIN-DIN Coaxial Cable 1 pc. Remote Controller 2 pcs. "R6" size batteries 1 pc. Stereo type Phono Cable 1 pc. AC Mains Lead 1 pc. Programming Sheet		

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.